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ι Capricorni ($\alpha = 21^h 16^m.7$; $\delta = -17^\circ 15'$).

The spectrum is H type. The total range in-velocity for six plates (1900-1906) is about 9^{km} . Its variable velocity was suspected by Mr. MOORE from the third plate and confirmed by recent measures.

W. W. CAMPBELL.

LICK OBSERVATORY, November 12, 1906.

J. H. MOORE.

NOTE ON SOME SIMPLIFICATIONS IN THE REDUCTION OF
STELLAR PHOTOGRAPHS.

A number of accurate methods for the reduction of measures of star photographs exist. Some of these methods require *four* plate-constants to be determined, whereas in others it is necessary to derive *six* constants.

In satellite and asteroid work, where only one or two places are to be derived from each plate, the labor of obtaining these constants is relatively great. This consideration, together with the rapidly increasing number of places which are derived photographically, makes it desirable to simplify the processes as much as possible.

To obtain the accurate position of a star on a plate, four constants, besides a knowledge of the refraction, are necessary, viz. :—

Scale value,

Orientation, and

The right ascension and declination of the center of the plate.

Values for these constants, as near the true ones as possible, are usually assumed and corrections obtained by a least-square adjustment of the residuals derived from a comparison with catalogue stars.

If, instead of taking an *arbitrary* plate-center, we take the *center of gravity* of our *system of comparison-stars*, the corrections to the center become zero, and we have but *two* unknown quantities to determine.

To obtain the rigorously accurate center it is only necessary to apply the mean of the *proper curvature corrections* to the mean of the right ascensions and declinations of the comparison-stars.

The adoption of the above center shortens the solution for the remaining two constants by reducing some of the coeffi-

cients to zero. A number of simple checks can also be introduced.

If the curvature corrections are derived from arguments depending upon the *intersection of the optical axis on the plate*, as origin, the above treatment is rigorous in the sense in which that term is now applied to the reduction of stellar photographs.

Lick Observatory *Bulletin* No. 102 contains the necessary formulæ for the reduction in the above manner.

These formulæ are intended for the reduction of measures over a field 2° or less square, whose center lies between declinations of $+75^\circ$ and -75° . In the immediate regions of the poles this method, which is based on the well-known four-constant method of JACOBY, does not apply.

A full account of the method has been prepared, which, together with general tables of curvature corrections, auxiliary tables to facilitate the computation of refraction constants, etc., will appear later as a publication of the Lick Observatory.

MT. HAMILTON, CAL., November 16, 1906.

C. D. PERRINE.

NOVA AQUILÆ No. 2.

Several photometric observations of *Nova Aquilæ* have been added this year to my series published in Numbers 104, 105, and 106 of these *Publications*. The 36-inch refractor was used, but it has not been available for the purpose on good nights.

A preliminary discussion of the measures of the comparison-stars x , f , g , and k leads to the values: x , $12^m.01$; f , $13^m.63$; g , $15^m.0$; k , $15^m.0$. The co-ordinates of k referred to the *Nova* are: $\Delta\alpha$, $-0^s.4$; $\Delta\delta$, $-18''$.

The magnitudes derived for *Nova Aquilæ* are given in the column "*Nova*":--

G. M. T. 1906.	Settings on <i>Nova</i> .	Compari- son-stars.	<i>Nova</i> .	Weight.	Remarks.
June 14 ^d .95	12	$g\ k$	$14^m.6$	2	Fair conditions.
Aug. 18 .77	8	$d\ e$	$15 .2$	2	Fair conditions.
Oct. 19 .67	3	$d\ e$	$15 .2$	$\frac{1}{2}$	Poor conditions; obs. incomplete.

An observation was attempted on October 23d in moon-light and poor atmospheric conditions. All the faint com-